

## REMARKS

Claims 1-20 are amended. New claim 21 is added. There is no new subject matter. Reconsideration and allowance of claims 1-21 is requested in light of the following remarks.

### *Claim Rejections – 35 USC § 102*

Claims 7, and 10-20 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No 6,265,232 issued to Simmons (“Simmons”). The applicants disagree.

Claim 7 is amended. The amendments are fully supported by the original disclosure at, e.g., claim 7. Claim 7 recites *a wafer defect map comprising, inter alia, a marking corresponding to a defect on the semiconductor wafer*, the marking identifying a type of the defect (emphasis added). It is alleged that, “[b]ase[d] on the claim language, the examiner has concluded that *the markings are the wafer defects*” (emphasis added).

The applicants do not understand this statement. In the preamble of claim 7, the claim language recites “[a] wafer defect map comprising ...” Thus, every feature recited following the “comprising” portion of claim 7 further modifies the claimed “wafer defect map.” Furthermore, the claim language recites that a marking corresponds to a defect on the semiconductor wafer. Since the marking must be part of the wafer defect map and must also correspond to a defect on the wafer, the applicants do not see how, based on the claim language, that one arrives at the conclusion that “the markings *are* the wafer defects” (emphasis added). A map of a thing is not the thing itself.

Furthermore, claim 7 recites that *the marking identifies a type of the defect* (emphasis added). While the Examiner has recited various portions of Simmons that explain Simmons’ size bins, Simmon’s size bins have nothing to do with the recited marking on a wafer map that identifies a type of defect. In fact, Simmons’ size bins are used only in the tabular format shown in FIG. 3 (see column 5, line 64 to column 6, line 20). Simmons’ FIG. 3 is not a wafer defect map. Simmons’ FIG. 1 is a wafer defect map (column 3, lines 24-25). The *only* thing that Simmons’ has to say about markings on the wafer defect map of FIG. 1 is that they indicate the location of defects on the wafer (column 3, lines 58-60). Simmons FIG. 1 clearly illustrates that the markings on a conventional wafer defect map are all uniform in color, shape, and size. Thus, although one could tell the location of a wafer defect by looking at the wafer defect map shown in Simmons FIG. 1, it would be impossible to ascertain the type of wafer defect.

For the reasons given above, Simmons does not teach the recited claim 7 features of a wafer defect map having a marking corresponding to a defect on a wafer, the marking

identifying the type of defect. Consequently, Simmons does not anticipate claim 11 because it fails to show the identical invention in as complete detail as is contained in the claim.

MPEP 2131, *citing Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989).

Claims 8-10 are amended for consistency with claim 7.

Claim 10 inherently contains the features of claim 7. Consequently, Simmons also fails to anticipate claim 10 because it does not teach every feature inherent to the claims (MPEP 2131).

Regarding claim 11, it is amended to recite, *inter alia*, determining a chemical composition of each of the at least two defects. Support for this amendment is found, e.g., in FIG. 3 and at Table 1, pages 5 and 6, of the application as filed. Simmons does not teach or suggest determining a chemical composition of the wafer defects. Consequently, Simmons does not anticipate claim 11 because it fails to show the identical invention in as complete detail as is contained in the claim. MPEP 2131, *citing Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989).

Claims 12-20 are amended for consistency with claim 11.

Claims 12-20 inherently contain the features of claim 11. Consequently, Simmons also fails to anticipate claims 12-20 because it fails to teach all the features inherent to the claims (MPEP 2131).

### ***Claim Rejections – 35 USC § 103***

Claims 1-6, 8-9, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simmons. The applicants disagree.

Claim 1 is amended. The amendments are fully supported by the original disclosure, at, e.g., claim 1.

Regarding claim 1, it recites, *inter alia*, the feature of ***marking the location of the first defect on a wafer map using a mark to identify a type of the defect*** (emphasis added). The Examiner has previously stated that Simmons fails to disclose using different types of marks to identify different types of defects, and it was explained above with respect to claim 7 how Simmons also fails to teach or suggest using ***a marking*** that identifies the type of the defect (emphasis added). Because ***all*** the features recited in a claim must be taught or suggested by the ***prior art***, the fact that Simmons fails to teach or suggest this feature is, by itself, sufficient to prove that Simmons does not meet the third criterion for establishing a ***prima facie*** case of obviousness for claim 1 (see, e.g., MPEP 2143; MPEP 2143.03; emphasis added).

The Examiner suggests that it would be obvious to use different types of marks to identify different types of defects on a wafer map due to the fact that the marks are only ornamental, and cites *In re Seid* (MPEP 2144.04) as support for this statement. To the contrary, if claim 7 states that the marks identify a type of the defect, then by the very language of the claim the markings serve a *functional* purpose and are not merely ornamental (emphasis added).

Furthermore, please note that *In re Seid* is discussed in MPEP 2144.04 “Legal Precedent as Source of Supporting Rationale.” MPEP 2144.04 extrapolates upon MPEP 2144, “Sources of Rationale Supporting a Rejection under 35 USC 103.” It is evident that MPEP 2144 pertains only to the first criterion for establishing *prima facie* obviousness, that of the “rationale to *modify or combine the prior art*” (see MPEP 2144, first sentence; emphasis added).

The knowledge of persons of ordinary skill in the art only applies to the first criterion for establishing *prima facie* obviousness, the suggestion or motivation to combine the references (see, e.g., MPEP 2143; MPEP 2143.01). The knowledge of persons of ordinary skill in the art is not applicable to the third criterion for establishing *prima facie* obviousness (see, e.g., MPEP 2143; MPEP 2143.03). As explained above, Simmons fails to fulfill the *third* criterion because it does not teach or suggest all the features of claim 1 (MPEP 2143; emphasis added).

Claim 1 also recites “analyzing a composition of the first defect.” It is alleged that claim 1 must instead recite “chemical composition” for the feature to be read into the claim. The applicants disagree. The supporting portions of the specification were previously highlighted to illustrate that Simmons does not teach analyzing a composition of the defect in a way that is consistent with the applicants’ specification. Pending claims must be interpreted consistently with the specification (see, e.g., MPEP 2111).

The meaning of the term “composition” is at issue. It is alleged that “Simmons determined the composition of the wafer defects by its weight value” and that “weight value WV is based on defect size and part type specific geometry parameters.” Thus, it is apparently alleged that “composition” is the same as “size” and “shape” (specific geometry). The applicants disagree. The words of a claim must be given their plain meaning unless they are defined in the specification (MPEP 2111.01). Plain meaning refers to the meaning given to the term by those of ordinary skill in the art (MPEP 2111.01). No term in a claim may be given a meaning repugnant to its usual meaning. MPEP 2173.05(a), *citing In re Hill*, 161 F.2d 367 (CCPA 1947).

In this case, interpreting the term “composition” to mean “size” and “shape” is both repugnant to its usual meaning and contrary to the plain meaning of the term. In the context of claim 1 those of ordinary skill in the art would probably interpret “a composition of the defect” to mean “what the defect is composed of” or “what the defect is made of.” The American Heritage Dictionary of the English Language (4<sup>th</sup>. Ed., 2000) supports this conclusion because the most relevant definition is “the combining of distinct parts or elements to form a whole.” In other words, “composition” refers to the internal structure of the defect. The overall size and shape of the defect is not indicative of the internal structure, or composition, of the defect.

Finally, it is also apparently alleged that the term “weight value” as used by Simmons means the composition of the defect. Not so. Each defect 14 is assigned a defect weight value that reflects its *projected effect on wafer yield* (column 4, lines 35-37; emphasis added). The defect weight value is based on *defect size* and *specific geometry* parameters (column 4, lines 38-39; emphasis added). Thus, it is apparent that Simmons “weight value” does not refer to the actual physical weight of the defects, but to the projected effect of the defect on wafer yield, calculated based upon the size and specific geometry of the individual defect. The applicants note that “weighted averages” and “weighting functions” are other terms that are well known in the art that have nothing to do with an actual physical weight, but are merely used to indicate the relative importance of groups of numbers.

Consequently, for the reasons given above, Simmons also fails to establish *prima facie* obviousness for claim 1 because it does not teach or suggest the feature of analyzing a composition of the first defect (MPEP 2143.03).

Claims 2-6 are amended for consistency with claim 1. No new matter is added.

Claims 2-6 depend from claim 1. Any claim that depends from a nonobvious independent claim is also nonobvious. MPEP 2143.03, *citing In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

Claims 8 and 9 depend from claim 7. Any claim that depends from a nonobvious independent claim is also nonobvious. MPEP 2143.03, *citing In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

Claim 13 depends from claim 11. Any claim that depends from a nonobvious independent claim is also nonobvious. MPEP 2143.03, *citing In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

Further in regard to claim 13, it recites using a marking that is color-coded based upon the defect type. Contrary to this recited feature, Simmons FIG. 1 illustrates that the markings

on the wafer defect map are not color coded based upon the defect type. Consequently, Simmons also fails to establish *prima facie* obviousness for claim 13 because it does not teach or suggest all the features of the claim (MPEP 2143.03).

#### *Allowable Subject Matter*

Claim 17 is indicated to be otherwise allowable except for its dependence on a rejected base claim. Accordingly, new independent claim 21 is added that contains all the features of claims 17 and 11. The applicants submit that claim 21 is in condition for allowance.

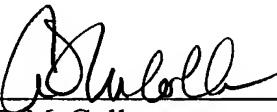
#### **CONCLUSION**

For the foregoing reasons, reconsideration and allowance of claims 1-21 of the application as amended is requested. Please telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

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Respectfully submitted,

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